

CLAIMS

1. An apparatus for producing seedlings comprising:
a closed-type structure (2) surrounded by
light-interceptive thermally insulating walls;
multi-staged seedling culture shelves (3) provided with
a plurality of shelf boards (3a) capable of mounting grafted
seedlings (8) thereon, said seedling culture shelves being
disposed within said closed-type structure;
an artificial lighting device (5) capable of projecting
light onto the grafted seedlings and a fan (4) capable of
generating air stream over each of said seedling culture
shelves, said artificial lighting device and said fan being
installed on each of said seedling culture shelves;
an air conditioning unit (6) capable of controlling the
temperature and the humidity within said closed-type
structure;
a carbon dioxide gas supply unit (7) capable of supplying
carbon dioxide gas into said closed-type structure; and
a light-transmitting shield (9) detachably disposed to
cover the grafted seedlings mounted on each of said shelf boards
of said seedling culture shelves, said light-transmitting
shield being provided with a plurality of vent holes (15).
2. The apparatus for producing seedlings according to
claim 1, wherein the plurality of vent holes (15) of said
light-transmitting shield (9) are provided with means of
varying the rate of hole area thereof.

3. A method of producing seedlings comprises: when grafted seedlings (8) are to be produced by using the apparatus for producing seedlings of claim 1,

cultivating rootstocks and scions on the seedling culture shelves (3) of said apparatus;

joining the cultivated rootstocks and scions with each other to prepare grafted seedlings;

mounting the grafted seedlings on the shelf boards (3a) of said seedling culture shelves (3);

covering the grafted seedlings on each of said shelf boards with the light-transmitting shield (9) provided with the plurality of vent holes (15);

projecting light of a predetermined luminous intensity onto the grafted seedlings from the artificial lighting device (5) of said apparatus through said light-transmitting shield;

controlling the temperature and the humidity within the closed-type structure (2) of said apparatus by the air conditioning unit (6) of said apparatus and supplying carbon dioxide gas into said closed-type structure by the carbon dioxide gas supply unit (7) while generating air stream over each of said shelf board by the fan (4) to thereby enable gas exchange between the inner space of said closed-type structure and the inner space of said light-transmitting shield to be carried out through the vent holes of said light-transmitting shield; and

performing welding of the grafted seedlings under this condition (state).

4. The method of producing seedlings according to claim 3, wherein, by making controllable the rate of hole area of the plurality of vent holes (15) in said light-transmitting shield (9), the quantity of gas exchange between the inner space of said closed-type structure (2) and the inner space of said light-transmitting shield (9) through said vent holes are made controllable.

5. The method of producing seedlings according to claim 3 or claim 4, wherein the luminous intensity during the welding of the grafted seedlings (8) is set to between 150 and 350 $\mu\text{mol}/\text{m}^2/\text{s}$ in terms of the photosynthesis photon flux density.